

Amendments

In the Claims:

Please substitute claim 66 presented below for claim 66 previously presented. A marked up copy of amended claim 66, which shows all of the changes that have been made to the claims, is submitted in the Appendix filed herewith with additions double underlined and deletions shown in ~~strikethrough~~.

66. (Twice Amended) The apparatus of claim 65, wherein a microprocessor is configured to receive a command from a host computer in communication with the microprocessor to activate the filter.

REMARKS

Claims 45-57 and 59-68 are pending in the application, with claims 45, 57 and 65 being the independent claims. Reconsideration of this Application is respectfully requested. Applicants appreciate the courtesies extended by the Examiner during the personal interview conducted on April 22, 2003. During the interview claims 54, 56, 60 and 66 were discussed with respect to the *Salcudean, Fung, and Radke* references. The Examiner indicated that he would reconsider the rejection under 35 U.S.C. § 103 upon receiving a written response. The Examiner further indicated that the rejections under 35 U.S.C. § 112 of claims 54, 56, and 60 are overcome by Fig. 10 of the present application and that claim 66 requires amendment.

Double Patenting Rejections

Claims 48-57 and 59-67 stand rejected as being unpatentable over claims 9, 30 or 38 of U.S. Patent No. 5,999,168. Applicants submit herewith a Terminal Disclaimer, thus obviating

the double patenting rejection. Therefore, Applicants respectfully submit that the rejection of claims 48-57 and 59-67 under the judicially-created doctrine of obviousness-type double patenting has been overcome, and should be withdrawn.

Rejections Under 35 U.S.C. § 103

Claims 45-52, 54, 57, 59-60, 62-65, 67 and 68 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,790,108 to Salcudean et al. ("*Salcudean et al. ('108')*") when taken in view of U.S. Patent No. 5,116,180 to Fung et al. ("*Fung et al. ('180')*") and U.S. Patent No. 5,223,776 to Radke et al. ("*Radke et al. ('776')*"). Applicants respectfully traverse these rejections for the reasons set forth below.

Independent claim 45 recites receiving a haptic-feedback signal at a haptic-feedback device, the haptic-feedback device being configured to provide input data to an associated graphical environment; and filtering sensor data based on the haptic-feedback signal to produce the input data operative to reduce visual disturbance in the associated graphical environment.

Independent claim 57 recites receiving a haptic-feedback signal at a haptic feedback device; outputting haptic-feedback based on the haptic feedback signal; filtering sensor data to produce input data according to a disturbance filter process associated with the haptic feedback, the sensor data being based on a movement of the haptic-feedback device during the outputting of the haptic feedback, the filtering of the input data operative to reduce disturbance in an associated graphical environment caused by the output of the haptic feedback; and updating the associated graphical environment based on the input data.

Independent claim 65 recites an actuator configured to receive a haptic-feedback signal, the actuator configured to produce haptic feedback based on the haptic feedback signal; a sensor

coupled to the actuator, the sensor configured to detect a movement of the sensor; and a filter configured to receive sensor data from the sensor and to provide input data to an associated graphical environment based on the haptic-feedback signal.

Salcudean et al. ('108) is directed to a mouse controller that is configured to output haptic feedback. *Fung et al. ('180)* discloses a controller for a robotic arm. The robotic manipulator (Fig. 1, item 1) is controlled by a hand controller (see, e.g., Fig. 1, item 10). *Fung et al. ('180)* is trying to solve a known problem in a “human in the loop” robotic arm control system. For example, *Fung et al. ('180)* states:

“...there remains a need for a machine control loop capable of reflecting forces encountered at the operative part of the machine in a hand controller that avoids the problems and drawbacks of the prior art.” Column 2, lines 40-44.

Thus, *Fung et al. ('180)* is directed to a control loop that provides to a user an accurate indicia of the forces encountered at the operative part of the machine. *Fung et al. ('180)* teaches a filter (Fig. 5, item 121) for filtering a “processed force signal.” This processed force signal is generated as a result of the feedback from the robotic arm. See generally column 6, lines 30-63.

The control scheme of *Fung et al. ('180)* stands in stark contrast to the invention as recited, for example, in independent claim 45: “filtering sensor data based on the haptic-feedback signal to produce the input data operative to reduce visual disturbance in the associated graphical environment.” In contrast, *Fung et al. ('180)* filters the haptic-feedback signal itself, not “sensor data based on the haptic-feedback signal to produce input data” as claimed. Furthermore, *Fung et al. ('180)* does not “produce [] input data.” *Fung et al. ('180)* is actually creating a filtered

haptic-feedback signal, by filtering not the signal input into the robotic arm, but the signal input into the hand controller.

In the Office Action, the Examiner concluded that it would have been obvious to “filter the input data received from a haptic feedback device in order to reduce visual disturbances in a graphical environment caused by output of force sensation to the haptic feedback device because any type of filter would reduce the visual disturbance and because to solve the problem of visual disturbances in a graphical environment one of ordinary skill in the art would look to how the problem of visual disturbances in the real world were overcome.” *See* Office Action at page 9.

As discussed during the personal interview, *Fung et al.* ('180) does not teach filtering “the input data received from a haptic feedback device.” Because of this deficiency, there can be no suggestion or motivation to combine the references. There is no teaching or suggestion in the cited references to filter the “sensor data based on the haptic-feedback signal to produce the input data operative to reduce visual disturbance in the associated graphical environment,” as claimed in independent claim 45 let alone “filtering sensor data to produce input data according to a disturbance filter process associated with the haptic feedback, the sensor data being based on movement of the haptic feedback device during the outputting of the haptic feedback,” as recited in claim 57, or “a filter configured to receive sensor data from the sensor and to provide input data” as recited in claim 65.

Moreover, a combination of the recited references would not result in the claimed invention. If *Salcudean et al.* ('108) was modified to include the filter of *Fung et al.* ('180), the filter would be used to filter the haptic-feedback signals entering into the haptic feedback device. There is no teaching or suggestion of “filtering sensor data based on the haptic-feedback signal

to produce the input data operative to reduce visual disturbance in the associated graphical environment.”

Radke et al. ('776) adds nothing and fails to correct the aforementioned deficiencies. *Radke et al. ('776)* nominally recites a filter. *See* Fig. 2, 14. As discussed during the personal interview, *Radke et al. ('776)* does not disclose any particular functionality of the filter whatsoever. In fact, the only place in the entire reference disclosing a filter of any kind is the word “filter” in Fig. 2 without further elaboration as to what is filtered or what is produced by the filter. *Radke et al. ('776)* does not address the filter anywhere in its written description. Thus, there is no teaching or suggestion of “filtering sensor data based on the haptic-feedback signal to produce the input data operative to reduce visual disturbance in the associated graphical environment.”

Finally, while the Examiner states that it would have been obvious to modify *Salcudean et al. ('108)* to arrive at the claimed invention, Applicants submit that none of the cited references teach “reducing visual disturbance” as suggested in the Office Action. The cited references fail to disclose such a teaching and it cannot be supplied through a hindsight modification using the present claims as a roadmap.

In light of the foregoing arguments, Applicant’s respectfully request that the rejection of independent claims 45, 57 and 65 under 35 U.S.C. § 103(a) be withdrawn. Claims 46-56 are dependent on claim 45 and are allowable for at least this reason. Claims 59-64 are dependent claim 57 and are allowable for at least this reason. Likewise, claims 66-68 are dependent on claim 65, and are allowable for at least this reason. Applicants therefore respectfully request the rejection of claims 45-52, 54, 57, 59-60, 62-65 67 and 68 under 35 U.S.C. § 103 be withdrawn.

Rejection Under 35 U.S.C. § 112, First Paragraph

Claims 54, 56, 60 and 66 stand rejected under 35 U.S.C. § 112, first paragraph, as not being described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors had possession of the claimed invention at the time that the Application was filed.

Claims 54, 56 and 60

As discussed during the personal interview, the rejection of claims 54, 56 and 60 is overcome by the disclosure of Figure 10 of the application. Accordingly, Applicants respectfully request that the rejection of claims 54, 56 and 60 be withdrawn.

Claim 66

As discussed during the personal interview, Applicants have amended claim 66 to overcome the rejection of claim 66. Accordingly, Applicants respectfully request that the rejection of claim 66 be withdrawn.

Allowable Subject Matter

Applicants appreciate the indication of allowable subject matter in claims 53, 55 and 61.

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner

believes, for any reason, that further personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

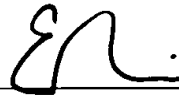
Prompt and favorable consideration of this Amendment is respectfully requested.

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Enclosure: Appendix indicating claim amendments.

Claim Amendments

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